

Electric Utility Restructuring Plan  
New England Electric System--Proposal for Environmental Component

I. Purpose

The purpose of the environmental component of an electric industry restructuring plan is to provide a means such that a competitive industry structure supports and furthers the efforts of environmental regulators to reduce the environmental impacts of electricity generation. This objective is to be achieved by establishing a program by which older fossil-fueled electric generating facilities will be required to reduce certain air emissions to a level that is roughly equivalent to new source performance standards. As implemented, the program will not supersede any environmental agency's legal authority to regulate the units nor require the units to meet emission standards other than the most stringent applicable standards required by law. The program is intended to be simple and straight-forward, one that is transferable to other older utility sources in all regions of the country.

II. Generic Components of Proposal

1. The program is designed to require all older fossil-fueled electric generating units throughout the U.S. to meet "old source performance standards" ("OSPS") for NO<sub>x</sub> and SO<sub>2</sub> on January 1 of the year following the year a unit becomes 40 years old. The 40 year time period starts from the year a unit commenced commercial operation. For those units that are 40 years or older in the year the program becomes effective, they will be required to meet OSPS by January 1 of the following year. The end point for this program is the year 2010; therefore, all units will be assumed to be 40 years old on or before December 31, 2009.
2. As of the date the program becomes effective, each existing operating unit will receive "allowances" for that unit's emissions of NO<sub>x</sub> and SO<sub>2</sub>. Each allowance equals one ton of allowable emissions. Unit-specific allowances are aggregated to become a utility company-wide cap.
3. New units or repowered units subject to New Source Performance Standards, that commence commercial operation after the date the program is implemented, will not receive allowances, and thus not be included under the program. Emissions from new or repowered units will not be included in determining a company's overall cap of NO<sub>x</sub> or SO<sub>2</sub>.
4. Unit-specific allowances are calculated as follows:
  - a. For units 40 years old or older, or by the year 2010:

$$\begin{array}{ccccccc} \text{Yearly Net Electrical} & & & & & & \text{Conversion} \\ \text{Generation} & & \text{Heat Rate} & & \text{Emission Rate} & & \text{Factor} \\ (\text{kWh}) & \times & (\text{Btu/kWh}) & \times & (\text{lbs./MMBtu}) & \times & \frac{1}{2 \times 10^9} \\ & & & & & & = \text{Tons/Year} \end{array}$$

The elements of the formula are derived as follows:

- i) Yearly Net Electrical Generation = average kWh of the highest eight (8) of ten (10) year period of 1986-1995, as reported on U.S. Department of Energy Form EIA- 767, Schedule IV.
- ii) Heat Rate = 10,000 Btu/kWh
- iii) Emission Rate = 0.30 lbs/MMBtu for SO<sub>2</sub>  
0.15 lbs/MMBtu for NO<sub>x</sub>

PROVIDED, however, that if a unit's required emission rate is lower than the rates listed above, the lowest, most stringent emission rate applies.

- iv) Conversion Factor = factor required to convert differing measures used in formula to result in tons per year of emissions.

b. For units less than 40 years old:

NO<sub>x</sub>--- Same formula as in 4.a. above, except that emission rate is set at the regulatory limit.

SO<sub>2</sub>--- Allowances as allocated under Acid Rain Program, Title IV of federal Clean Air Act.

5. Each utility company may meet its allowance cap by any combination of control technologies, fuel switching, unit retirements, operational changes and/or retirements of purchased or surplus allowances. Selection of any one or a combination of more than one of these options to meet the company cap will be at the sole discretion of the utility company.
6. SO<sub>2</sub> allowances may be traded freely in the market as allowed under the Clean Air Act, Title IV Acid Rain Program regulations. Unused allowances may be banked and carried forward also as allowed under the Acid Rain Program regulations.
7. It is anticipated that a NO<sub>x</sub> trading program will be established similar to the federal SO<sub>2</sub> program. Unused NO<sub>x</sub> allowances also may be banked, provided, however, that allowance withdrawals from the bank may be subject to a "flow control" mechanism as specified in the Ozone Transport Commission model rule.
8. With respect to jointly-owned units, their participation in the program will be governed in the same manner as jointly-owned units are governed under the federal Acid Rain Program.
9. The final emission reductions applicable on January 1, 2010, will be subject to the following "trigger" mechanisms which assure that a substantive portion of the national emissions inventory is subject to this program:
  - a. If in calendar year 2005, the actual NO<sub>x</sub> emissions of the emissions inventory in the Ozone Transport Region ("OTR") and in the East Central Area Reliability Coordination Agreement ("ECAR") and the Mid-America Interconnected Network ("MAIN") of the North American Electric Reliability Council (hereinafter collectively referred to as "the Region") are reduced by no less than 50% from the calendar year 1996 actual NO<sub>x</sub>

emissions of the emissions inventory in the Region, then implementation of the OSPS for NO<sub>x</sub> will be on January 1, 2010. If a reduction of NO<sub>x</sub> emissions of 50% or greater is not achieved in calendar year 2005, the actual emissions of the emissions inventory in the Region will be measured in each successive calendar year until such time as the prescribed level of reduction from the year 1996 baseline is actually achieved, and implementation of the OSPS NO<sub>x</sub> requirement will be five (5) years from the year the emission reduction of 50% or greater is actually achieved.

- b. If the SO<sub>2</sub> allowances allocated under Title IV of the federal Clean Air Act to the emissions inventory in the Region in the year 2007 are 50% or less of the SO<sub>2</sub> allowance allocation made in the year 2000, then implementation of the OSPS for SO<sub>2</sub> will be on January 1, 2010. If a reduction of 50% or greater is not achieved in the year 2007, the SO<sub>2</sub> allocation will be reviewed in each successive year until such time as the prescribed level of reduction from the year 2000 baseline is actually achieved, and implementation of the OSPS SO<sub>2</sub> requirement will be three (3) years from the year the reduction in allowance allocation of 50% or greater from the year 2000 baseline is actually achieved.

The NO<sub>x</sub>- and SO<sub>2</sub>-specific triggers described above will be implemented independent of one another.

### III. NEES-Specific Requirements Under the Proposal

1. The NEES-specific emission reductions included in this proposal apply to the following fossil-fueled power plants:

Brayton Point Station, Somerset, MA  
Unit Nos. 1, 2, 3, and 4

Salem Harbor Station, Salem MA  
Unit Nos., 1, 2, 3, and 4

New England Power Company ("NEP"), a subsidiary of NEES, is the owner and operator of the Brayton Point and Salem Harbor facilities. NEP may meet its allowance cap by any combination of control technologies, fuel switching, unit retirements, operational changes and/or retirements of purchased or surplus allowances.

2. The program start date for NEP's Brayton Point and Salem Harbor units is 2000. The dates when the Brayton Point and Salem Harbor units will be subject to OSPS are as follows:

<u>Unit No.</u>	<u>Brayton Point</u>	<u>Salem Harbor</u>
1	2004	2000 <sup>1</sup>
2	2005	2000 <sup>1</sup>
3	2010	2000 <sup>1</sup>
4	2010 <sup>2</sup>	2000 <sup>2</sup>

(<sup>1</sup> Although 40 year time period for these three units ends earlier than year indicated, each unit will be subject to OSPS by the year indicated.)

(<sup>2</sup> Although 40 year time period for these two units ends later than years indicated, each unit will be subject to OSPS by the years indicated.)

3. The emission reductions profile for all the NEP Brayton Point and Salem Harbor units, absent the NEP-specific triggers described in Section III.5. below, are illustrated in the attached graphs.

4. With respect to SO<sub>2</sub>, the total annual cost that may be necessary to achieve the reductions included in this proposal is capped as follows:

<u>Year(s)</u>	<u>Annual Cost Cap</u>
2000-2003	\$1.9MM p/year
2004	\$2.7MM p/year
2005-2009	\$3.5MM p/year
2010 and beyond	\$6.0MM p/year

provided, however, that the cost cap for the year 2010 and beyond will remain at \$3.5MM p/year if the SO<sub>2</sub> trigger in Section II.9. is not met. Once the trigger is met, the cost cap will increase to \$6.0MM p/year. Whether the annual tonnage cap of SO<sub>2</sub> is achieved in any given year is limited by the annual cost cap applicable in that year.

5. With respect to NO<sub>x</sub>, the following additional triggers apply to NEP:
  - a. On January 1, 2003, Brayton Point Unit Nos. 1 and 2 will receive allowances calculated pursuant to Section II.4.a. of this proposal if in calendar year 2000 the actual NO<sub>x</sub> emissions of the emissions inventory in the Region is reduced by no less than 50% from the emissions of the emissions inventory in the Region in the baseline year of 1990. If a reduction of 50% or greater is not achieved in calendar year 2000, the actual emissions of the emissions inventory will be measured in each successive calendar year until such time as the prescribed level of reduction from the year 1990 baseline is actually achieved. Brayton Point Unit Nos. 1 and 2 will receive allowances pursuant to Section II.4.a. of this proposal in the third year after the prescribed reductions in the emissions inventory are actually achieved; provided, however, that in no event shall the date the units are subject to the OSPS requirements of Section II.4. go beyond January 1, 2004 for Brayton Point Unit No. 1 and January 1, 2005 for Brayton Point Unit No. 2.
  - b. On January 1, 2007, Brayton Point Unit No. 3 will receive allowances calculated pursuant to Section II.4.a. of this proposal if in calendar year 2003 the actual NO<sub>x</sub> emissions of the emissions inventory in the Region is

reduced by no less than 75% from the emissions of the emissions inventory in the Region in the baseline year of 1990. If a reduction of 75% or greater is not achieved in calendar year 2003, the actual emissions of the emissions inventory will be measured in each successive calendar year until such time as the prescribed level of reduction from the year 1990 baseline is actually achieved. Brayton Point Unit No. 3 will receive allowances pursuant to Section II.4.a. of this proposal in the fourth year the after prescribed reductions in the emissions inventory are actually achieved; provided, however, that allowances for Brayton Point Unit No. 3 will be calculated pursuant to Section II.4.a. of this proposal by no later than January 1, 2010 subject to the NO<sub>x</sub> trigger specified in Section II.9. of this proposal.